

Modular DC/DC Converters

GENERAL DESCRIPTION

Analog Devices' line of compact dc/dc converters offers system designers a means of supplying a reliable, easy to use, low cost solution to a variety of floating (analog and digital) power applications. These devices provide high accuracy, short circuit protected, regulated outputs with very low output noise and ripple characteristics.

Fourteen models are offered in five power levels of 1 watt, 1.8 watts, 4.5 watts, 6 watts and 12 watts. Input voltage versions include 5 volt, 12 volt, 24 volt and 28 volt with output ranges as follows: +5 volt, ± 12 volts and ± 15 volts at ± 60 mA to 1000 mA output current capability.

Most models are high efficiency (typically over 60% at full load) and feature complete 6-sided continuous shielding for EMI/RFI protection. A π -type input filter is contained, in some models, which virtually eliminates the effects of reflected input ripple current. Most Analog Devices' dc/dc converters are available from stock in both large and small quantities with substantial discounts being applied to large quantity orders.

DC/DC POWER SUPPLY FEATURES

- Inaudible (>20 kHz) Converter Switching Frequency
- Continuous, Six-Sided EMI/RFI Shielding Except on 1 Watt and 1.8 Watt Models
- Output Short Circuit Protection (Either Output to Common)
- Automatic Restart After Short Condition Removed
- Automatic Starting with Reverse Current Injected into Outputs
- Low Output Ripple and Noise
- High Temperature Stability
- Free Air Convection Cooling

No external heat sink or specification derating is required over the operating temperature range.

SPECIFICATIONS - Typical @ +25°C at nominal input voltage unless otherwise noted*

Model	Output Voltage Volts	Output Current mA	Input Voltage Volts	Input ¹ Voltage Range Volts	Input Current Full Load	Output Voltage Error max	Temperature Coefficient /°C max	Efficiency Full Load min	Dimensions Inches
943	5	1000	5	4.75/5.25	1.52A	$\pm 1\%$	$\pm 0.02\%$	62%	2.0×2.0×0.38
958	5	100	5	4.5/5.5	200 mA	$\pm 5\%$	-0.01% (typ)	50%	1.25×0.8×0.4
941	± 12	± 150	5	4.75/5.25	1.17A	$\pm 1\%$	$\pm 0.01\%$	58%	2.0×2.0×0.38
960	± 12	± 40	5	4.5/5.5	384 mA	$\pm 5\%$	$\pm 0.01\%$ (typ)	50%	1.25×0.8×0.4
962	± 15	± 33	5	4.5/5.5	396 mA	$\pm 5\%$	$\pm 0.01\%$ (typ)	50%	1.25×0.8×0.4
964	± 15	± 33	12	10.8/13.2	165 mA	$\pm 5\%$	$\pm 0.01\%$ (typ)	50%	1.25×0.8×0.4
965	± 15	± 190	5	4.65/5.5	1.7 A	$\pm 1\%$	$\pm 0.005\%$ (typ)	62% (typ)	2.0×2.0×0.38
966	± 15	± 190	12	11.2/13.2	710 mA	$\pm 1\%$	$\pm 0.005\%$ (typ)	62% (typ)	2.0×2.0×0.38
967	± 15	± 190	24	22.3/26.4	350 mA	$\pm 1\%$	$\pm 0.005\%$ (typ)	62% (typ)	2.0×2.0×0.38
949	± 15	$\pm 60^{**}$	5	4.65/5.5	0.6 A	$\pm 2\%$	$\pm 0.03\%$	58%	2.0×1.0×0.375
940	± 15	± 150	5	4.75/5.25	1.35 A	$\pm 1\%$	$\pm 0.01\%$	62%	2.0×2.0×0.38
953	± 15	± 150	12	11/13	0.6 A	$\pm 0.5\%$	$\pm 0.01\%$	62%	2.0×2.0×0.38
945	± 15	± 150	28	23/31	250 mA	$\pm 0.5\%$	$\pm 0.01\%$	61%	2.0×2.0×0.38
951	± 15	± 410	5	4.65/5.5	3.7 A	$\pm 0.5\%$	$\pm 0.01\%$	62%	3.5×2.5×0.88

NOTES

¹Models 940 and 941 will deliver up to 120 mA output current (and Model 943 will deliver up to 600 mA) over an input voltage range of 4.65 V dc and 5.5 V dc.

*Consult Analog Devices Power Supplies Catalog for additional information.

**Single-ended or unbalanced operation is permissible such that total output current load does not exceed a total of 120 mA.

Specifications subject to change without notice.

GENERAL SPECIFICATIONS FOR 1 W AND 1.8 W MODELS

Line Regulation - Full Range: $\pm 0.3\%$ ($\pm 1\%$ max, 949)

Load Regulation - No Load to Full Load: $\pm 0.4\%$ ($\pm 0.5\%$ max, 949)

Output Noise and Ripple: 20 mV p-p (with 15 μ F tantalum capacitor across each output) 2 mV rms max, 949)

Breakdown Voltage: 300 V dc min (500 V dc min, 949)

Input Filter Type: π

Operating Temperature Range: -25°C to +71°C

Storage Temperature Range: -40°C to +125°C (+100°C, 949)

Fusing: If input fusing is desired, we recommend the use of a slow blow type fuse that is rated at 150%-200% of the dc/dc converter's full load input current.

GENERAL SPECIFICATIONS FOR 4.5 W, 6 W AND 12 W MODELS

Line Regulation - Full Range: $\pm 0.07\%$ max ($\pm 0.02\%$ max, 951, 960 Series) ($\pm 0.1\%$ max, 943)

Load Regulation - No Load to Full Load: $\pm 0.07\%$ max ($\pm 0.02\%$ max, 951, 960 Series) ($\pm 0.1\%$ max, 943)

Output Noise and Ripple: 1 mV rms max

Breakdown Voltage: 500 V dc min

Input Filter Type: π

Operating Temperature Range: -25°C to +71°C

Storage Temperature Range: -40°C to +125°C

Fusing: If input fusing is desired, we recommend the use of a slow blow type fuse that is rated at 150%-200% of the dc/dc converter's full load input current.